SEQUENCE LISTING

<110> Burioni, Roberto

<120> HUMAN MONOCLONAL ANTIBODY FAB FRAGMENTS DIRECTED AGAINST HCV E2 GLYCOPROTEIN AND ENDOWED WITH IN VITRO NEUTRALIZING ACTIVITY

<130> 30068

<150> IT RM2002A/000049

<151> 2002-01-30

<160> 24

<170> PatentIn version 3.1

<210> 1

<211> 119

<212> PRT

<213> Homo sapiens

<400> 1

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Leu Leu Glu Gln Ser Gly Ala Glu Val Lys Met Pro Gly Ala Thr Val
1               5                  10                  15

Lys Val Ser Cys Gln Ser Ser Arg Tyr Thr Phe Thr Ser Tyr Gly Ile
            20                  25                  30

Gly Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met Gly Trp
        35                  40                  45

Ile Ser Gly Tyr Thr His Glu Thr Lys Tyr Ala Gln Ser Phe Gln Gly
    50                  55                  60

Arg Val Thr Met Thr Ala Glu Thr Ser Thr Gly Thr Ala Tyr Met Glu
65                  70                  75                  80
```

Leu Arg Ser Leu Arg Ser Asp Asp Thr Ala Thr Tyr Tyr Cys Ala Arg
85 90 95

Asp Gly Gly Gly Arg Val Val Val Pro Pro Thr His Leu Arg Ala Phe
100 105 110

Asp Val Trp Gly Gln Gly Thr
115

<210> 2

<211> 104

<212> PRT

<213> Homo sapiens

<400> 2

Met Ala Glu Leu Thr Gln Ser Pro Gly Thr Leu Ser Leu Ser Pro Gly
1 5 10 15

Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser His Arg Val Asn Asn Asn
20 25 30

Phe Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu
35 40 45

Ile Ser Gly Ala Ser Thr Arg Ala Thr Gly Ile Pro Asp Arg Phe Ser
50 55 60

Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Arg Leu Glu
65 70 75 80

Pro Asp Asp Phe Ala Val Tyr Tyr Cys Gln Gln Tyr Gly Asp Ser Pro
85 90 95

Leu Tyr Ser Phe Gly Gln Gly Thr
100

<210> 3

<211> 124

<212> PRT

<213> Homo sapiens

<400> 3

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Leu Leu Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gln Thr Leu Ser
1               5                  10                  15

Leu Thr Cys Thr Val Ser Gly Val Ser Ile Ser Tyr Gly Gly Arg Gly
            20                  25                  30

Val Ser Tyr Trp Gly Trp Val Arg Gln Ser Pro Gly Lys Gly Leu Glu
        35                  40                  45

Trp Ile Gly His Ile Tyr Tyr Phe Gly Asp Thr Phe Tyr Asn Pro Ser
    50                  55                  60

Leu Asn Asn Arg Ala Thr Ile Ser Ile Asp Ser Ser Lys Asn Gln Phe
65                  70                  75                  80

Ser Leu Lys Leu Lys Ser Val Thr Ala Ser Asp Thr Ala Leu Tyr Phe
                85                  90                  95

Cys Ala Arg Ser Thr Leu Gln Tyr Phe Asp Trp Leu Leu Thr Arg Glu
            100                 105                 110

Ala Ala Tyr Ser Ile Asp Phe Trp Gly Gln Gly Ile
        115                 120
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<210> 4

<211> 102

<212> PRT

<213> Homo sapiens

<400> 4

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Met Ala Glu Leu Thr Gln Ser Pro Ser Phe Leu Ser Ala Ser Val Gly
1               5                  10                  15

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Gly Val Thr Ile Leu
            20                  25                  30

Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Pro Pro Lys Ala Leu Ile
        35                  40                  45

Tyr Ala Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
    50                  55                  60

Ser Gly Ser Asp Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65                  70                  75                  80
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Glu Asp Ser Ala Thr Tyr Tyr Cys Gln Gln Leu Asn Thr Tyr Pro Trp
85 90 95

Thr Phe Gly Gln Gly Thr
100

<210> 5

<211> 116

<212> PRT

<213> Homo sapiens

<400> 5

Leu Leu Glu Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser Ser Val
1 5 10 15

Lys Val Ser Cys Lys Ala Ser Gly Asp His Tyr Gly Ile Asn Trp Val
20 25 30

Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met Gly Gly Ile Ile Pro
35 40 45

Val Phe Gly Thr Thr Thr Tyr Ala Gln Lys Phe Gln Gly Arg Ala Thr
50 55 60

Ile Thr Ala Asp Asp Ser Thr Gly Thr Ala Phe Leu Glu Leu Thr Arg
65 70 75 80

Leu Thr Phe Asp Asp Thr Ala Val Tyr Phe Cys Ala Thr Pro His Gln
85 90 95

Leu His Val Leu Arg Gly Gly Lys Ala Leu Ser Pro Trp Asp Tyr Trp
100 105 110

Gly Gln Gly Thr
115

<210> 6

<211> 102

<212> PRT

<213> Homo sapiens

<400> 6

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Met Ala Glu Leu Thr Gln Ser Pro Ala Thr Leu Ser Val Ser Pro Gly
1               5                  10                  15

Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Ser Ser Asn
            20                  25                  30

Leu Ala Trp Tyr Gln Gln Lys Arg Gly Gln Ala Pro Ser Leu Leu Ile
        35                  40                  45

Tyr Gly Thr Ser Thr Arg Ala Thr Gly Ile Pro Ala Arg Phe Ser Gly
    50                  55                  60

Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Ser
65                  70                  75                  80

Glu Asp Phe Ala Val Tyr Tyr Cys Gln Gln Tyr Asn Asp Trp Pro Ser
                85                  90                  95

Thr Phe Gly Gln Gly Thr
            100
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<210> 7

<211> 120

<212> PRT

<213> Homo sapiens

<400> 7

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Leu Leu Glu Gln Ser Gly Ser Glu Val Lys Val Pro Gly Ser Ser Leu
1               5                  10                  15

Lys Val Ser Cys Lys Thr Ser Gly Gly Thr Phe Ser Thr Tyr Thr Phe
            20                  25                  30

Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met Gly Gly
        35                  40                  45

Ile Thr Pro Ile Ile Gly Ile Ala Asn Tyr Ala Arg Asn Phe Gln Asp
    50                  55                  60

Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Val Tyr Met Glu
65                  70                  75                  80
```

Val Arg Arg Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys Ala Lys
85 90 95

Thr Ser Glu Val Thr Ala Thr Arg Gly Arg Thr Phe Phe Tyr Ser Ala
100 105 110

Met Asp Val Trp Gly Gln Gly Thr
115 120

<210> 8

<211> 102

<212> PRT

<213> Homo sapiens

<400> 8

Met Ala Glu Leu Thr Gln Ser Pro Ser Phe Leu Ser Ala Ser Val Gly
1 5 10 15

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Gly Ile Ser Asn Tyr
20 25 30

Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
35 40 45

Tyr Ala Ala Ser Thr Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

Ser Gly Ser Trp Thr Glu Phe Thr Leu Thr Ile Ser Arg Leu Gln Pro
65 70 75 80

Glu Asp Phe Ala Thr Tyr Tyr Cys Gln His Leu Asn Thr Tyr Pro Trp
85 90 95

Thr Phe Gly Gln Gly Thr
100

<210> 9

<211> 118

<212> PRT

<213> Homo sapiens

<400> 9

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Leu Leu Glu Gln Ser Gly Ser Glu Val Lys Lys Pro Gly Ser Ser Val
1               5                  10                  15

Arg Val Ser Cys Thr Thr Ser Gly Gly Thr Leu Ser Asp Tyr Gly Phe
            20                  25                  30

Asn Trp Leu Arg Gln Ala Pro Gly Gln Gly Pro Glu Trp Met Gly Gly
        35                  40                  45

Ile Ile Pro Leu Phe Arg Arg Thr Thr Tyr Gly Gln Lys Phe Gln Gly
    50                  55                  60

Arg Leu Thr Ile Thr Ala Asp Glu Ser Thr Gly Ala Thr Tyr Met Glu
65                  70                  75                  80

Leu Ser Ser Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys Ala Arg
                85                  90                  95

Glu Lys Val Ser Val Leu Thr Gly Gly Lys Ser Leu His Tyr Phe Glu
            100                 105                 110

Tyr Trp Gly Lys Gly Thr
        115
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<210> 10

<211> 102

<212> PRT

<213> Homo sapiens

<400> 10

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Met Ala Glu Leu Thr Gln Ser Pro Ala Thr Leu Ser Val Ser Pro Gly
1               5                  10                  15

Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Ser Ser Arg
            20                  25                  30

Leu Ala Trp Tyr Gln Gln Lys Arg Gly Gln Ala Pro Ser Leu Leu Ile
        35                  40                  45

Tyr Asp Thr Ser Ser Arg Ala Thr Gly Val Pro Ala Arg Phe Ser Ala
    50                  55                  60

Ser Gly Ser Gly Thr Gln Phe Thr Leu Thr Ile Ser Ser Leu Gln Ser
65                  70                  75                  80
```

Glu Asp Phe Ala Leu Tyr Tyr Cys Gln Gln Tyr Asn Asp Trp Pro Ser
85 90 95

Thr Phe Gly Gln Gly Thr
100

<210> 11

<211> 118

<212> PRT

<213> Homo sapiens

<400> 11

Leu Leu Glu Glu Ser Gly Ala Glu Val Lys Lys Pro Gly Ser Ser Val
1 5 10 15

Lys Val Ser Cys Lys Thr Ser Gly Asp Thr Phe Arg Tyr Gly Ile Thr
20 25 30

Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met Gly Gln Ile
35 40 45

Met Pro Thr Phe Ala Thr Ala Thr Tyr Ala Gln Arg Phe Gln Gly Arg
50 55 60

Val Thr Ile Ser Ala Asp Glu Ser Thr Ser Thr Ala Tyr Leu Glu Val
65 70 75 80

Arg Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys Ala Thr Pro
85 90 95

Arg Gln Val Thr Ile Leu Arg Gly Pro Lys Ala Leu Ser Pro Trp Asp
100 105 110

Tyr Trp Gly Gln Gly Thr
115

<210> 12

<211> 102

<212> PRT

<213> Homo sapiens

<400> 12

Met Ala Glu Leu Thr Gln Ser Pro Ala Thr Leu Ser Ala Ser Pro Gly
1 5 10 15

Glu Arg Ala Ser Leu Ser Cys Arg Ala Ser Gln Ser Val Ser Ser Asn
20 25 30

Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu Ile
35 40 45

Ser Gly Ala Ser Thr Arg Ala Thr Gly Val Pro Ala Arg Phe Ser Gly
50 55 60

Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Ser
65 70 75 80

Glu Asp Phe Ala Val Tyr Tyr Cys Gln Gln Tyr Asn Asn Trp Pro Pro
85 90 95

His Phe Gly Gln Gly Thr
100

<210> 13

<211> 357

<212> DNA

<213> Homo sapiens

<400> 13
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cagtcttccc gttacacctt caccagttac ggtatcggct gggtgcgaca ggcccctgga 120

caggggcttg agtggatggg atggatcagc ggatacaccc atgagacaaa atatgcacag 180

agtttccagg gcagagtcac catgaccgca gagacatcca cgggcacagc gtatatggag 240

ttgaggagcc tgcggtctga cgacacggcc acatattact gcgcgagaga tggaggaggg 300

agggtggtag tgccgcctac tcatctacgt gcttttgatg tctggggtca agggacg 357

<210> 14

<211> 312

<212> DNA

<213> Homo sapiens

<400> 14
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ctctcctgca gggccagtca cagagtcaat aacaacttct tagcctggta tcagcagaaa 120
cctggccagg ctcccaggct cctcatctct ggtgcatcta ccagggccac tggcatccca 180
gacaggttca gtggcagtgg gtctggaaca gacttcactc tcaccatcag cagactggag 240
cctgatgatt ttgcagttta ttattgtcag cagtatggtg actcacctct ttattctttt 300
ggccagggga cc 312

<210> 15
<211> 372
<212> DNA
<213> Homo sapiens

<400> 15
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gtctccggtg tctccatcag ttacggtggt cgtggcgttt cctactgggg ttgggtccgc 120
cagtccccag ggaagggcct ggagtggatt ggccacatct actactttgg agacaccttc 180
tacaacccgt ccctcaacaa tcgagctacc atatcaatag actcatccaa aaaccagttc 240
tccctcaagc tcaagtctgt gactgcctca gacacggccc tgtatttctg tgccaggagc 300
accctacagt attttgactg gttattgaca cgggaggctg cctactccat tgacttctgg 360
ggccagggaa ta 372

<210> 16
<211> 306
<212> DNA
<213> Homo sapiens

<400> 16
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atcacttgcc gggccagtca gggcgtcacc attcttttag cctggtatca gcaaaagcca 120
gggaaacccc ctaaggccct gatttatgct gcatcgtctt tgcaaagtgg ggtcccatca 180
aggttcagcg gcagtggttc tgacacagat ttcactctca caatcagcag cctacagcct 240
gaagattctg caacttatta ctgtcaacaa cttaacactt acccgtggac gttcggccag 300

gggacc 306

<210> 17

<211> 348

<212> DNA

<213> Homo sapiens

<400> 17
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aaggcttctg gagaccacta tggtatcaac tgggtgcgac aggcccctgg acaagggctg 120

gagtggatgg gcggtatcat ccctgtcttt ggcacaacta cctacgcaca gaagttccag 180

ggcagagcca ccattaccgc ggacgactcc acggggacgg ccttttgga gctgaccaga 240

ctgacatttg acgacacggc cgtctatttc tgtgcgacac ctcaccaact gcatgtcctc 300

cggggcggta aagccctctc cccctgggac tactggggcc agggaacc 348

<210> 18

<211> 306

<212> DNA

<213> Homo sapiens

<400> 18
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ctctcctgca gggccagtca gagtgttagc agtaacttag cctggtacca gcagaaacgt 120

ggccaggctc ccagtctcct catctacgga acatctacca gggccactgg tatcccagcc 180

aggttcagtg gcagtgggtc tgggacagag ttcactctca ccatcagcag cctgcagtct 240

gaagattttg cagtttatta ctgtcagcag tataatgatt ggccctccac cttcggccaa 300

gggaca 306

<210> 19

<211> 360

<212> DNA

<213> Homo sapiens

<400> 19
ctgctcgagc agtctgggtc tgaagtaaaa gtgcccgggt cctcgttgaa ggtctcctgc 60

aagacttctg gaggcacctt cagcacctat actttcagct gggtgcgaca ggcccctgga 120

cagggacttg agtggatggg ggggatcacc cctatcattg gcatcgcaaa ctacgcacgg 180

aacttccagg acagagtcac catcaccgcg gacgaatcca cgagcacggt ctacatggag 240

gtgaggaggc tgagatctga ggacacggcc gtatattatt gtgcgaaaac ttcggaagta 300

acagccacta gagggcggac tttcttctac tccgctatgg acgtctgggg tcaagggacc 360

<210> 20

<211> 306

<212> DNA

<213> Homo sapiens

<400> 20

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atcacttgcc gggccagtca gggcataagc aattatttag cctggtatca gcaaaaacca 120

gggaaagccc ctaagctcct gatctatgct gcatccactt tgcaaagtgg ggtcccatcg 180

aggttcagcg gcagtggatc ttggacagaa ttcactctca caatcagccg cctccagcct 240

gaagattttg caacttatta ctgtcaacac cttaatactt acccgtggac gttcggccaa 300

gggacc 306

<210> 21

<211> 354

<212> DNA

<213> Homo sapiens

<400> 21

ctgctcgagc agtctgggtc tgaggtgaag aaacctgggt cctcggtgag ggtctcgtgc 60

acgacttctg gaggcacctt gagcgactat ggtttcaact ggttacgaca ggcccctgga 120

caagggcctg agtggatggg agggatcatc cctttgtttc gaagaacaac ctacggacag 180

aagttccagg gcagactcac cattaccgcg gacgagtcca cgggcgcaac ctacatggag 240

ctgagcagcc tgagatctga cgacacggcc gtctattact gtgcgagaga gaaagtttcg 300

gtcctcacag gcggaaagtc actccattac tttgaatatt ggggcaaggg aacc 354

<210> 22

<211> 306

<212> DNA

<213> Homo sapiens

<400> 22
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ctctcctgca gggccagtca gagtgttagc agcaggttag cctggtacca gcagaaacgt 120

ggccaggctc ccagtctcct catctatgac acatcttcca gggccactgg tgtcccagcc 180

aggttcagtg ccagtgggtc tgggacgcag ttcactctca ccatcagcag cctgcagtct 240

gaagattttg cactttatta ctgtcagcag tataatgatt ggccctccac cttcggccaa 300

gggaca 306

<210> 23

<211> 354

<212> DNA

<213> Homo sapiens

<400> 23
ctgctcgagg agtctggggc tgaggtgaag aagccagggt cctcggtgaa ggtctcctgc 60

aagacttctg gagacacctt cagatatggt atcacgtggg tgcgacaggc ccctggacaa 120

gggcttgagt ggatgggaca gatcatgcct acgtttgcga cagcaaccta cgcacagagg 180

ttccagggca gagtcacgat ttccgcggac gaatccacga gcacagccta cttggaggtg 240

cgcagcctga gatctgaaga cacggccgtc tattactgtg cgacacctcg ccaagttact 300

atacttcggg gacctaaagc cctctcccct tgggactact ggggccaggg aacc 354

<210> 24

<211> 306

<212> DNA

<213> Homo sapiens

<400> 24
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ctctcctgca gggccagtca gagtgttagt agcaacttag cctggtacca gcagaaacct 120

ggccaggctc ccaggctcct catctctggt gcatccacca gggccactgg tgtcccggcc 180

aggttcagtg gcagtgggtc tgggacagag ttcactctca ccatcagtag cctgcagtct 240

gaagattttg cagtttatta ctgtcagcag tataataact ggcctcccca ctttggccag 300

gggacc 306